

REMARKS

Claim Rejections

Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph. Claims 1-8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hsu et al. (US-5,876,296). Claims 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hsu et al. in view of Bartolozzi et al. (US-6,022,284).

Amendments to Specification

Applicant has amended the specification as noted above to cure obvious grammatical and idiomatic inaccuracies and to correct typographical errors. No "new matter" has been added to the original disclosure by the foregoing amendments to the specification.

Abstract of the Disclosure

Applicant is submitting a substitute Abstract of the Disclosure for that originally filed with this application to more clearly describe the claimed invention. Entry of the substitute Abstract of the Disclosure is respectfully requested.

Drawings

Applicant proposes to amend Figures 1 and 2 as illustrated in red on the attached photocopies. In Figure 1 it is proposed to add reference "1" that illustrates the large sprocket set. In Figure 2 it is proposed to change the cross-section references to Roman numerals. No "new matter" has been added to the original disclosure by the proposed amendments to these figures. Approval of the proposed drawing changes is respectfully requested.

It is noted that no Patent Drawing Review (Form PTO-948) was received with the outstanding Office Action. Thus, except for the foregoing proposed changes, it must be assumed that the drawings are acceptable.

New Claims

By this Amendment, Applicant has canceled claims 1-8 and has added new claims 9-15 to this application. It is believed that the new claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

The new claims recite a tooth contour structure for large sprocket set (1) of a bicycle having a small sprocket (2), a large sprocket (3), a recession (324), and a projection surface (325). The large sprocket is arranged coaxially with the small sprocket and has at least one second tooth group (32). Each at least one second tooth group having at least three characteristic teeth (321, 322, 323). A first characteristic tooth (321) having a curved surface (326) on a non-force-acting side thereof and a cutting portion (328) below the curved surface. The recession is formed in the large sprocket below the first characteristic tooth. The projection surface is adjoined to and extends from the large sprocket towards the small sprocket at a tooth valley bottom edge between the first characteristic tooth and a second characteristic tooth (322). The projection surface having a top edge (3252). The cutting portion being between the curved surface of the first characteristic tooth and the top edge of the projecting surface. In one embodiment of the present invention, the top edge of the projection surface has a slant angle (3251). In another embodiment of the present invention, the recession extends from below the first characteristic tooth to below an adjacent tooth. Another embodiment of the present invention includes a recessed tooth valley (327) between the second characteristic tooth and a third characteristic tooth (323). In another embodiment of the present invention the first characteristic tooth is shortened or the second characteristic tooth is shortened.

The cited reference to Hsu et al. recites a gear shifting sprocket set for bicycle chain wheel having a large sprocket (1) being coaxial with a small sprocket (2) and being provided with an axially oriented recess (14) located in a bottom (111) which is located between a first tooth (11) and a second tooth (12). The large sprocket (1) having a support protrusion (18) and a flat smooth receiving strip (19) on a support protrusion.

The present invention is clearly distinguishable from Hsu et al. At col. 2, lines 54-57, Hsu et al. states:

The large sprocket 1 is coaxial with the small sprocket 2 and is provided with an axially oriented recess 14 located in a bottom 111 which is located between a first tooth 11 and a second tooth 12.

As stated above, Hsu et al. teaches a recess located between a first and second tooth, whereas in the present invention the recess is located below the first tooth and extends below an adjacent tooth. Further, Hsu et al. teaches at col. 2, lines 60-65:

The large sprocket 1 is further provided with a support protrusion 18 opposite to one side of the small sprocket 2, and a flat and smooth receiving strip 19 located under the support curved face 16 such that the receiving strip 19 is separated from the support curved face 16 by a distance of about one tooth pitch.

Hsu et al. teaches a support protrusion located one tooth pitch below the curved face between the first and second tooth, whereas in the present invention the projection surface is adjacent to a tooth valley bottom edge between the first and second characteristic tooth. Further, Hsu et al. teaches the support protrusion having a flat and smooth receiving strip, but unlike the present invention does not teach the projection surface having a slant edge. Additionally, Hsu et al. does not teach a recession formed in the large sprocket below the first characteristic tooth. Further, Hsu et al. does not teach a recessed tooth valley between the second characteristic tooth and the third characteristic tooth as in the present invention.

It is axiomatic in U.S. patent law that, in order for a reference to anticipate a claimed structure, it must clearly disclose each and every feature of the claimed structure. Applicant submits that it is abundantly clear that Hsu et al. does not disclose each and every feature of Applicant's new claims and, therefore, could not possibly anticipate these claims under 35 U.S.C. § 102. Specifically, Hsu et al. does not teach a projection surface adjacent to a tooth valley bottom edge between a first characteristic tooth and a second characteristic tooth, or a projection surface having a slant angle, or a recession formed below the first characteristic tooth. Absent a specific showing of these features, Hsu et al. cannot be said to anticipate any of Applicant's new claims under 35 U.S.C. § 102.

The cited reference to Bartolozzi et al. recites an apparatus for changing gear ratio in bicycles, especially in race bicycles having a smaller gear (2), a larger gear (20), and a plurality of cylindrical appendices (22). The smaller gear being positioned between a frame element and a larger gear. The plurality of cylindrical appendices being adjoined to the larger gear (20) and projecting securely towards the smaller gear (2).

The present invention is clearly distinguishable from Bartolozzi et al. Bartolozzi et al. teaches a plurality of cylindrical appendices, but does not teach a projection surface having a slant angle. Further, the cylindrical appendices taught in Bartolozzi et al. are not integrally formed with the gear, as in the present invention. Further, Bartolozzi et al. does not teach a recess, which is an improvement in the present invention. Additionally, Bartolozzi does not teach a recession formed in the large sprocket below the first characteristic tooth. Further, Bartolozzi does not teach a projection surface adjacent to a tooth valley bottom edge between the first characteristic tooth and the second characteristic tooth. Additionally, Bartolozzi does not teach a recessed tooth valley between the second characteristic tooth and the third characteristic tooth as in the present invention.



Even if the teachings of Hsu et al. and Bartolozzi et al. were combined, as suggested by the Examiner, the resultant combination does not teach a recession formed in the large sprocket below the first characteristic tooth. Additionally, the combination does not teach a projection surface adjacent to a tooth valley bottom edge between the first characteristic tooth and the second characteristic tooth. Further, the combination does not teach a recessed tooth valley between the second characteristic tooth and the third characteristic tooth as in the present invention.

It is a basic principle of the United States Patent Laws that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of the applicant's disclosure to create a hypothetical or fictional combination which allegedly renders a claim obvious unless there is some direction in the selected prior art patents to combine the selected teachings in a manner to negate the patentability of the claimed subject matter.

The Courts have advocated that even if the prior art may be modified, the modification is not obvious unless the prior art suggests the desirability for the modification. For example, in *In re Fritch*, 922 F.2d 1260, 23 USPQ.2d 1780 (Fed. Cir. 1992), the Court held, at page 1783:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.

Neither Hsu et al. nor Bartolozzi et al. disclose, or suggest a modification of the specifically disclosed structure that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious the new claims 9-15.

Summary

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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